

## Amendments to the Claims

The following Listing of Claims will replace all prior versions and listings of claims in the above-referenced application.

### Listing of Claims:

Claims 1-82. (Canceled)

83. (New) A chemical testing apparatus comprising:  
an optical fiber providing a substantially one-dimensional support conducting light along a length between two ends; and  
a combinatorial library of probe compounds attached at discrete locations along the length of the optical fiber in a predetermined pattern, the probe compounds positioned to be exposed to target compounds applied to the optical fiber.
84. (New) The chemical testing apparatus of claim 83 wherein the probe compounds are peptides.
85. (New) The chemical testing apparatus of claim 83 further including a light source providing light conducted along the optical fiber to detect modification of the probe compounds during reaction with the target compounds.
86. (New) The chemical testing apparatus of claim 85 wherein the light source is attached to at least one end of the optical fiber to transmit light by internal reflection along the length of the optical fiber to interact with multiple different probe molecules.
87. (New) The chemical testing apparatus of claim 83 wherein the probe compounds are placed on the light fiber to couple with evanescent waves through the fiber.

88. (New) The chemical testing apparatus of claim 83 wherein the probe molecules repeat with a predetermined spatial pattern.

89. (New) The chemical testing apparatus of claim 83 further including a light sensor receiving light from the optical fiber to distinguish among light interacting with different of the probe molecules.

90. (New) The chemical testing apparatus of claim 89 further including a means for Fourier analysis of the received light.

91. (New) A method of testing an analyte having target compounds, the method comprising the steps of:

(a) preparing an optical fiber with a combinatorial library of probe compounds attached at discrete locations along a length of the optical fiber in a predetermined pattern;

(b) exposing the prepared optical fiber to target compounds; and

(c) photometrically analyzing the exposed and prepared optical fibers to detect reaction of the probe compounds with the target compounds.

92. (New) The method of claim 91 wherein the probe compounds are peptides.

93. (New) The method of claim 91 further wherein the step of analyzing conducts light along the optical fiber to detect modification of the probe compounds during reaction with the target compounds.

94. (New) The method of claim 93 wherein the light source is attached to at least one end of the optical fiber to transmit light by internal reflection along the length of the optical fiber to interact with multiple different probe molecules.

95. (New) The method of claim 91 wherein the probe compounds are placed on the optical

fiber to couple with evanescent waves through the fiber.

96. (New) The method of claim 91 wherein the probe molecules repeat with a predetermined spatial pattern.

97. (New) The method of claim 91 further including the step of receiving light conducted along the optical fiber at a light sensor to distinguish among light interacting with different of the probe molecules.

98. (New) The method of claim 97 further including the step of conducting a Fourier analysis of the received light.